

PASS-THROUGH CAPACITY REQUIREMENTS FOR SERVICE PUMPS

Rule Affected: Title 30 Texas Administrative Code §290.45

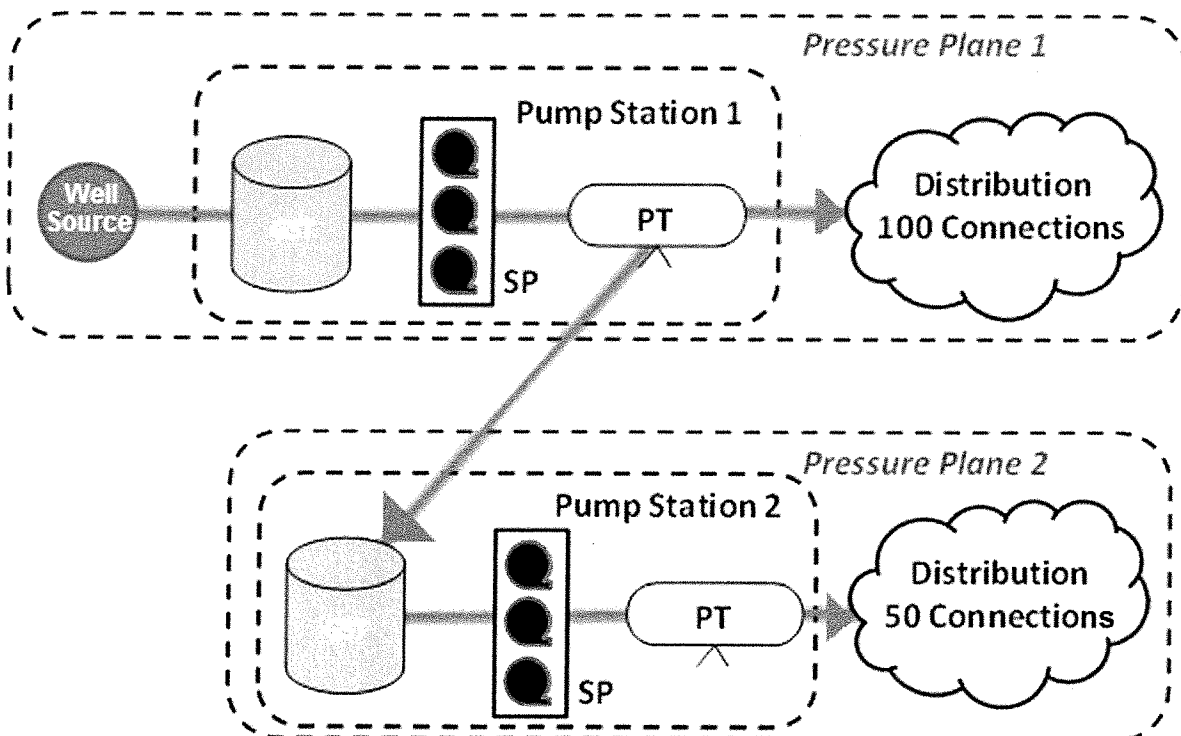
Background

This guidance clarifies the additional capacity requirement for those service pumps that are used to:

1. Meet peak hourly demand for the connections in one pressure plane. Total capacity requirement is **2.0** gallons per minute (gpm) per connection, or **0.6** gpm per connection for systems that provide an elevated storage capacity of 200 gallons per connection at that pressure plane.
2. Pass-through a supply of water to other pressure planes to meet their maximum daily demand. Total capacity requirement is 0.6 gpm per connection.

Guidance

Example 1: Consider a situation where the well pumps water directly into a ground storage tank (GST) located at Pump Station 1. Pump Station 1 distributes water to 100 connections in Pressure Plane 1 (PP1) **and** provides water to a storage tank located at Pump Station 2. Pump Station 2 distributes water to 50 connections in Pressure Plane 2 (PP2) with no other source of supply. Since Pump Station 1 provides a supply of water to Pressure Plane 2, the service pump (SP) capacity at Pump Station 1 must be adequate to meet the demand for Pressure Planes 1 **and** 2:



Required total well capacity

$$(0.6 \text{ gpm/connection})(100 \text{ connections}_{PP1} + 50 \text{ connections}_{PP2}) = \mathbf{90 \text{ gpm}}$$

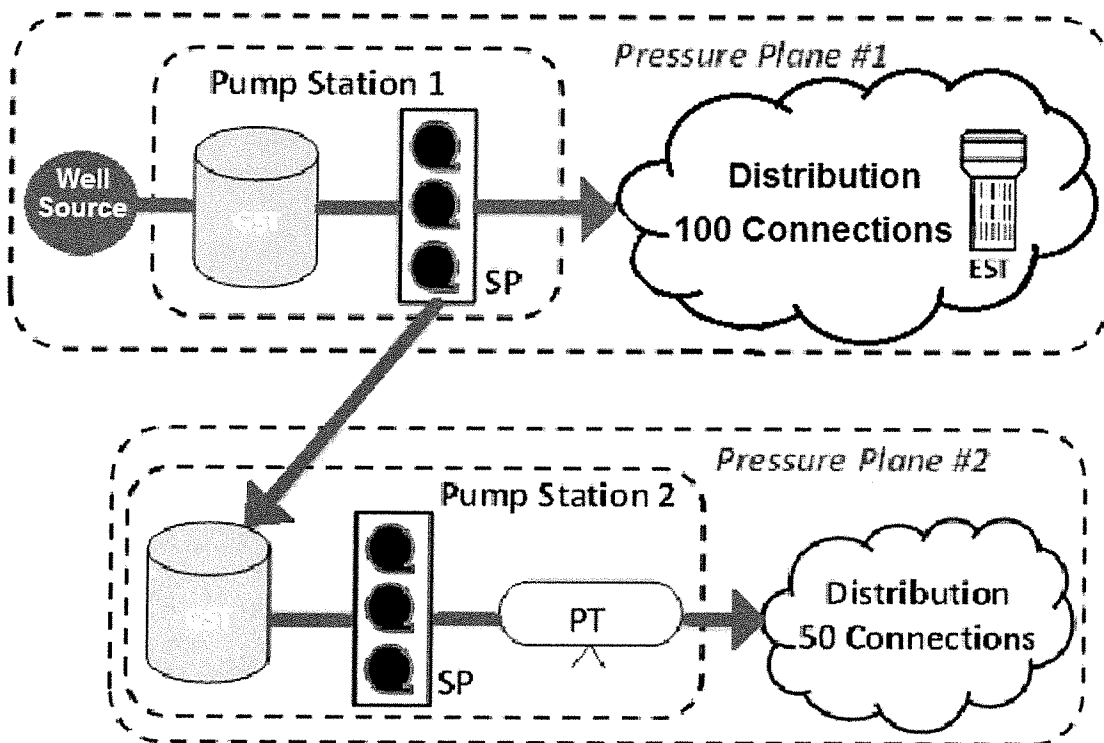
Required service pump capacity at Pump Station 1

$$\underbrace{(2.0 \text{ gpm/connection})(100 \text{ connections})}_{\text{Capacity for Pressure Plane 1}} + \underbrace{(0.6 \text{ gpm/connection})(50 \text{ connections})}_{\text{Capacity for Pressure Plane 2}} = \mathbf{230 \text{ gpm}}$$

Required service pump capacity at Pump Station 2

$$(2.0 \text{ gpm/connection})(50 \text{ connections}) = \mathbf{100 \text{ gpm}}$$

Example 2: Consider a situation where the well pumps directly into a GST located at Pump Station 1. Pump Station 1 distributes water to 100 connections in Pressure Plane 1, which has an elevated storage tank (EST) that meets the 200 gallons per connection requirement and provides water to a storage tank located at Pump Station 2. Pump Station 2 distributes water to connections in Pressure Plane 2 with no other source of supply. Since Pump Station 1 provides a supply of water to other pressure planes, the SP capacity at Pump Station 1 must be adequate to meet the demand for Pressure Planes 1 and 2:



Required total well capacity

$$(0.6 \text{ gpm/connection}) (100 \text{ connections}_{\text{Pressure Plane 1}} + 50 \text{ connections}_{\text{Pressure Plane 2}}) = \mathbf{90 \text{ gpm}}$$

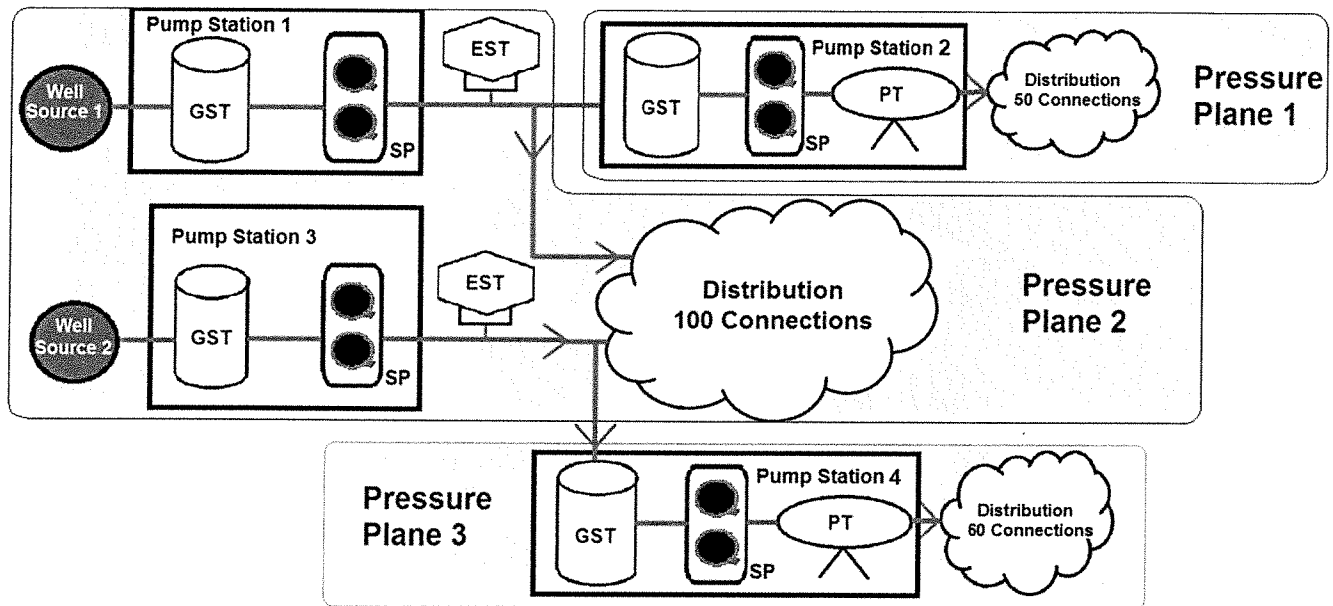
Required service pump capacity at Pump Station 1

$$\underbrace{(0.6 \text{ gpm/connection})(100 \text{ connections})}_{\text{Capacity for Pressure Plane 1}} + \underbrace{(0.6 \text{ gpm/connection})(50 \text{ connections})}_{\text{Capacity for Pressure Plane 2}} = \mathbf{90 \text{ gpm}}$$

Required service pump capacity at Pump Station 2

$$(2.0 \text{ gpm/connection})(50 \text{ connections}) = \mathbf{100 \text{ gpm}}$$

Example 3: Consider a situation where there are two well sources that pump directly into their own GSTs located at Pump Stations 1 and 3. Pump Station 1 conveys water to Pump Station 2 that distributes water to 50 connections in Pressure Plane 1. Water from Pump Stations 1 and 3 is distributed to 100 connections in Pressure Plane 2. Pressure Plane 2 has 2 ESTs that float on the system and meet the 200 gallon per connection requirement. Pump Stations 1 and 3 convey water to Pump Station 4 that distributes water to 60 connections in Pressure Plane 3 with no other source of supply. Since Pump Stations 1 and 3 provide a supply of water to other pressure planes, the SP capacity at Pump Stations 1 and 3 must each be adequate to meet the demand for Pressure Planes 1, 2, and 3:



Required total well capacity

$$(0.6 \text{ gpm/connection})(50 \text{ connections}_{PP1} + 100 \text{ connections}_{PP2} + 60 \text{ connections}_{PP3}) = \mathbf{126 \text{ gpm}}$$

Required service pump capacity at Pump Station 1 and Pump Station 3

$$\begin{aligned} & \underbrace{(0.6 \text{ gpm/connection})(50 \text{ connections})}_{\text{Capacity for Pressure Plane 1}} + \underbrace{(0.6 \text{ gpm/connection})(100 \text{ connections})}_{\text{Capacity for Pressure Plane 2}} \\ & + \underbrace{(0.6 \text{ gpm/connection})(60 \text{ connections})}_{\text{Capacity for Pressure Plane 3}} = \mathbf{126 \text{ gpm}} \end{aligned}$$

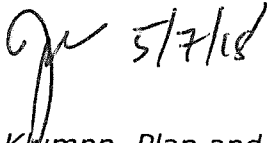
Required service pump capacity at Pump Station 2

$$(2.0 \text{ gpm/connection})(50 \text{ connections}) = \mathbf{100 \text{ gpm}}$$

Required service pump capacity at Pump Station 4

$$(2.0 \text{ gpm/connection})(60 \text{ connections}) = \mathbf{120 \text{ gpm}}$$

Finalized and Approved by:

Handwritten signature of Joel Klumpp, dated 5/7/18.

Joel Klumpp, Plan and Technical Review Section Manager, 05/07/2018

If no formal expiration date has been established for this staff guidance, it will remain in effect until superseded or canceled.

Revision History:

Date	Action	Action by
2009	Approved	Elston Johnson
09/23/2013	Approved	Ada Lichaa
10/16/2017	Reviewed	Yadhira Resendez
05/07/2018	Approved	Joel Klumpp